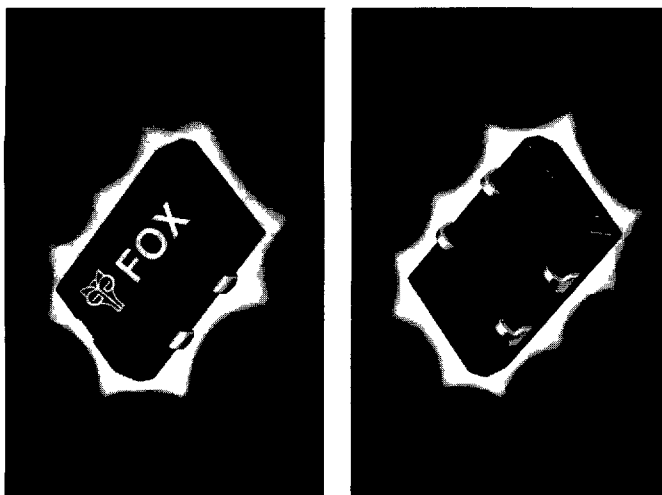


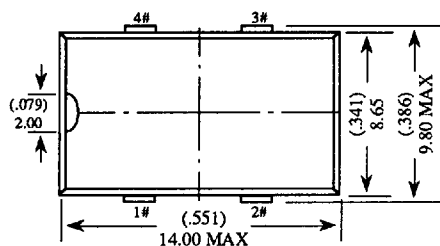
FSO / SURFACE MOUNT HCMOS CLOCK OSCILLATORS



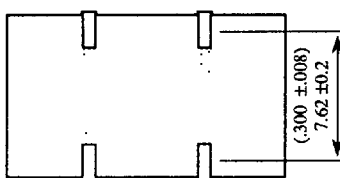
The FOX FSO Series is compatible with both TTL and HCMOS technologies. The J-Leaded configuration and high resistance to soldering temperature make it ideal for surface mount production processes. The FSO offers the low power consumption of HCMOS, but will drive a full 10 TTL Gates when used in a TTL application. This part is built to withstand vapor phase and other high temperature soldering operations and to give long term outstanding performance and reliability.

FEATURES

Extended Temperature Range
Solderable @ 260° for 10 sec.
3000 G Shock Resistance

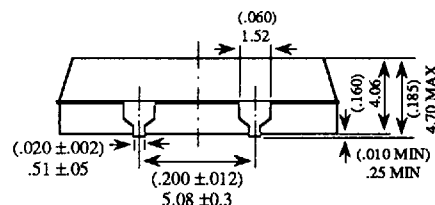


Metric dimensions shall govern.
All dimensions are in millimeters & parenthetically in inches



Pin Connections

#1 N.C. or E/D * #3 Output
#2 GND #4 +5 Vdc



* Enable / Disable Function

INH (Pin 1)	OUTPUT (Pin 3)
OPEN	ACTIVE
'1' Level ($V_{IH} \geq 2.0$ V) ($V_{IL} \geq 3.5$ V [-T 36-66])	ACTIVE
'0' Level ($V_{IL} \leq 0.8$ V) ($V_{IH} \leq 1.5$ V [-T 36-66])	High Z

FSO OPERATING CONDITIONS

Frequency Range	(Fo)	1.025 ~ 66.667	MHz
Temperature Range - Operating	(TA) (STD)	-10 ~ +70	°C
Storage	(TSTG)	-55 ~ +125	°C
Supply Voltage	(VDD)	5.0 ± 0.5	V

ELECTRICAL CHARACTERISTICS

[1] (-2, 2T, 2H) signifies enable/disable function (Pin 1).

PARAMETERS	CONDITION	FSO / FSO-2 [1]		FSO-T / FSO-2T [1]		FSO-H / FSO-2H [1] ***		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
Frequency Range		1.025	26.000	26.000	66.667	26.000	66.667	MHz
Frequency Stability **	-10 ~ +70°C	-100	+100	-100	+100	-100	+100	PPM
	-40 ~ +85°C	-200	+200	-200	+200	----	----	
Input Current (IDD)	No Load		23		35		35	mA
	Output Disabled (Iz)		(-2) 12		(-2T) 25		(-2H) 20	
Output Symmetry	0.5 VDD	40	60	----	----	40	60	%
	1.4V	40	60	40	60	----	----	
Rise Time (Tr)	20% ~ 80% VDD		8		----		7	ns
	0.4V ~ 2.4V		8		10		----	
Fall Time (Tf)	80% ~ 20% VDD		8				7	
	2.4V ~ 0.4V		8		8		----	
Output Voltage (VOL)	IOL = MIN		0.4		0.5		0.4	V
(VOH)	IOH = MAX	VDD - 0.4		2.4		VDD - 0.4		
Output Current (IOL)	'0' Logic Level	16		16		4.0		mA
(IOH)	'1' Logic Level		-0.4		-0.4		-4.0	
Output Load	HCMOS		50				50	pF
	TTL		10		10 #			TTL
Start-up Time (Ts)	0.0V ~ 4.5V		4		10		10	ms
Output Enable/Disable Time	-2, -2T, -2H		100		100		100	ns

** Inclusive of 25°C tolerance, operating temperature range, input voltage change and load change.

*** Can be utilized in 80386 applications. Consult factory for specifications and availability.

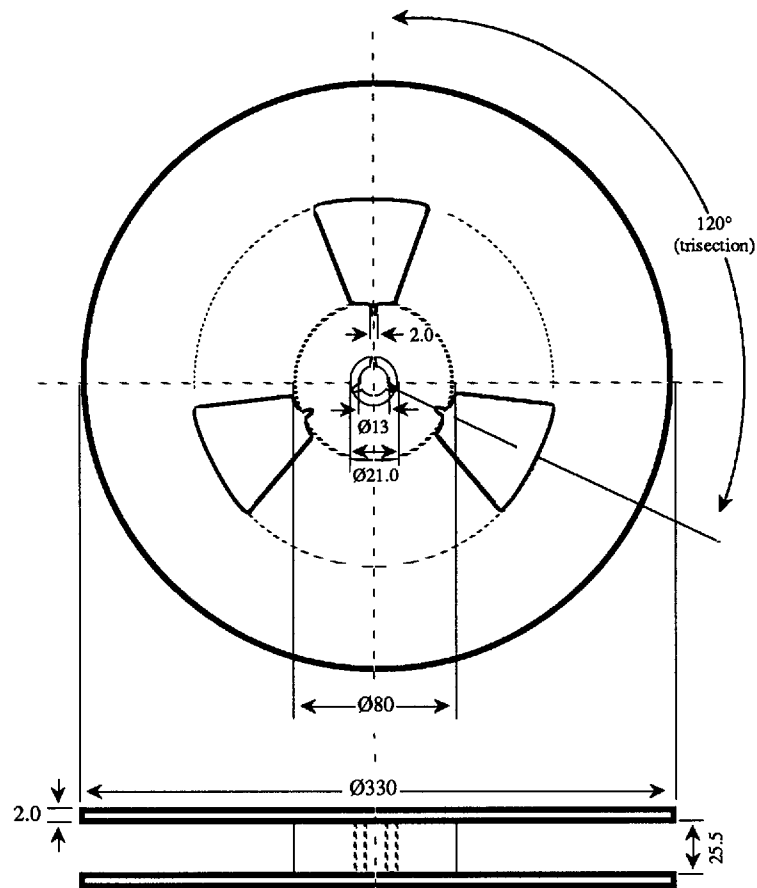
5TTL Gates @ 36+ ~ 66.667MHz

See page 53 for environmental/mechanical specifications, test circuits, and output waveforms.

Note: ±50PPM frequency stability at -10 to +70°C also available.

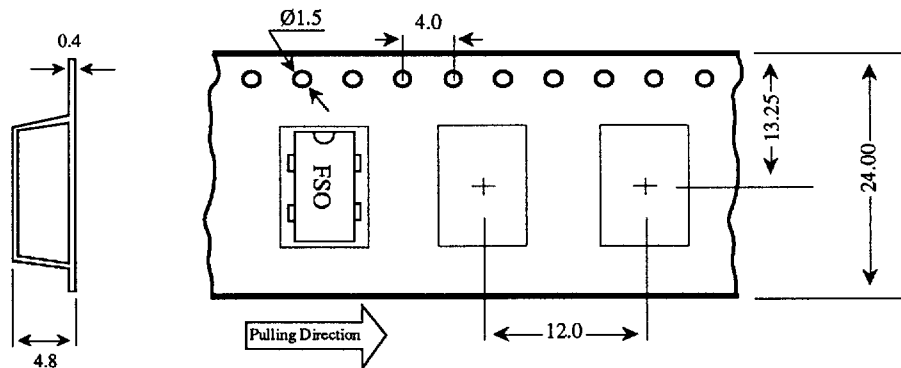
All specifications subject to change without notice. Rev. 3/18/94

FSO REEL DIMENSIONS *

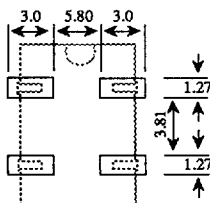


MATERIAL: CONDUCTIVE POLYSTYRENE PARTS QUANTITY PER REEL: 1,000

FSO EMBOSSED CARRIER DIMENSIONS *



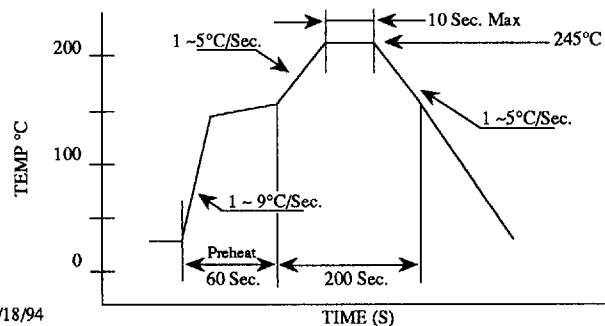
RECOMMENDED SOLDER PAD LAYOUT (Top View)



* Meets EIA-481A-2 and EIAJ -1009B
All dimensions in millimeters.
All specifications subject to change without notice. Rev. 2/18/94

RECOMMENDED SOLDER PROFILE

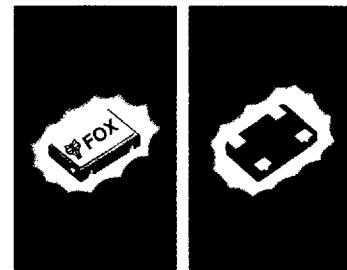
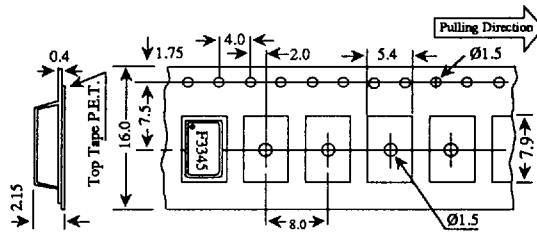
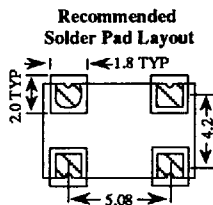
260°C MAX, 10 SEC MAX, 2 TIMES or 230°C MAX, 180 SEC MAX, 1 TIME



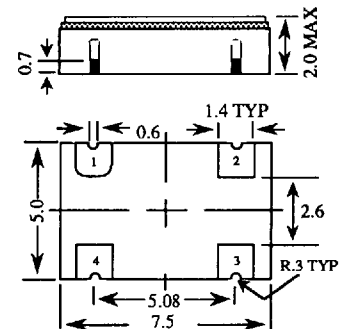
SURFACE MOUNT OSCILLATORS

The F3345/F3340 & F3355/F3350 are ceramic oscillators, perfect for applications such as miniature computers and peripherals, telecommunication devices and instrumentation. Featuring tri-state enable/disable, high capacitive load option, and low EMI. (See pg. 60 - 61 for further information)

	F3345	F3355
Frequency Range	1.8432 ~ 67 MHz	1.8432 ~ 50 MHz
Frequency Stability	±100PPM (F3345) ±50PPM (F3340)	±100PPM (F3355) ±50PPM (F3350)
Operating Temperature	-10°C to +70°C	-10°C to +70°C
Input Current		
1.8432 ~ 25 MHz	25 mA MAX	20mA MAX
25 ~ 50 MHz	45 mA MAX	35mA MAX
50 ~ 67 MHz	60 mA MAX	-----
Symmetry @ 2.5 VDC	45/55% MAX	45/55% MAX
Rise/Fall Time	7 ns MAX	10 ns MAX
Output Load	10 TTL or 50 pF	10 LS-TTL or 15 pF

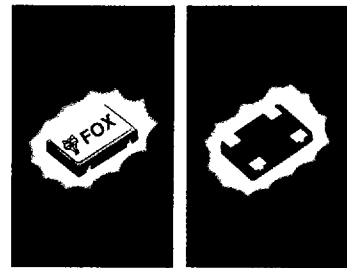
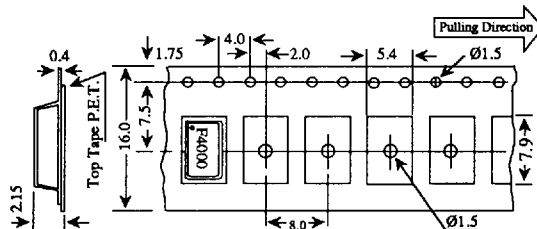
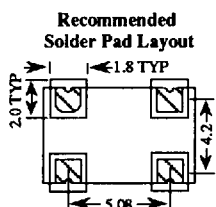


Pin Connections
#1 E/D #3 OUTPUT
#2 GND #4 5VDC

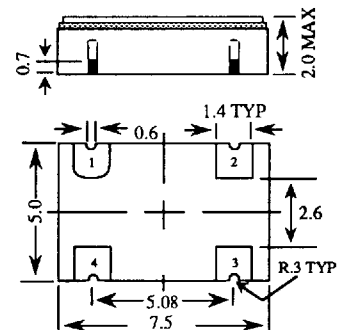


Fox supports the leading edge of technology with a new low-voltage oscillator, the F4000. Among the many benefits of a 3.3V system are an increase in battery life, reduced heat generation and improved EMI, packaged with the low profile necessary for today's advanced portable PC and instrumentation designs. (See pg. 62 - 63 for further information)

	F4000
Frequency Range	1.8432 ~ 50.000 MHz
Frequency Stability	±100PPM
Operating Temperature	-10°C to +70°C
Input Current	
1.8432 ~ 32.000 MHz	12.0 mA MAX
32.000+ ~ 50.000 MHz	16.5 mA MAX
Symmetry	45/55% MAX
Rise/Fall Time	7 ns MAX
Output Load - HCMOS	15 pF



Pin Connections
#1 E/D #3 OUTPUT
#2 GND #4 3.3VDC

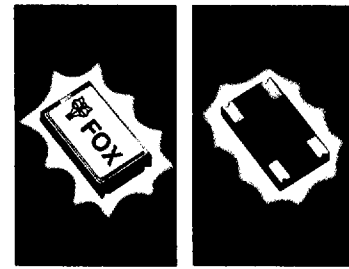


All dimensions in mm

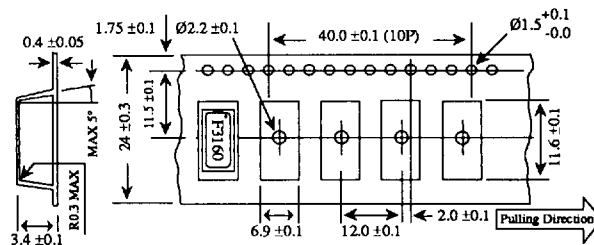
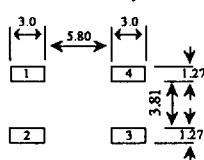
SURFACE MOUNT OSCILLATORS

The F3160 / F3170 & F3165 / F3175 are ceramic oscillators which can drive both HCMOS and TTL loads in high density applications. Features include tri-state enable/disable, industry compatible pinout, and low noise. (See pg. 58 - 59 for further information)

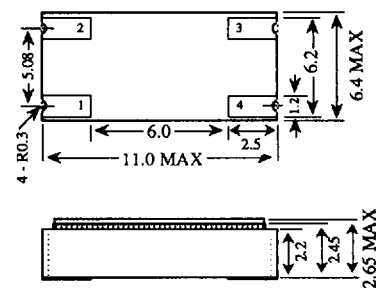
	F3160	F3165
Frequency Range	1.8432 - 100 MHz	1.8432 - 50 MHz
Frequency Stability	±100PPM ±50PPM (F3170)	±100PPM ±50PPM (F3175)
Operating Temperature	-10°C to +70°C	-10°C to +70°C
Input Current		
1.8432 ~ 25 MHz	25 mA MAX	20 mA MAX
25 ~ 50 MHz	45 mA MAX	35 mA MAX
50 ~ 70 MHz	70 mA MAX	-----
70 ~ 100 MHz	80 mA MAX	-----
Symmetry @ 2.5 VDC	40/60% MAX	45/55% MAX
Rise/Fall Time		
1.8432 ~ 70 MHz	7 ns MAX	10 ns MAX
70+ ~ 100 MHz	3ns MAX	-----
Output Load		
1.8432 ~ 70 MHz	10 TTL	10 LSTTL
1.8432 ~ 100 MHz	50 pF	15 pF



Recommended
Solder Pad Layout

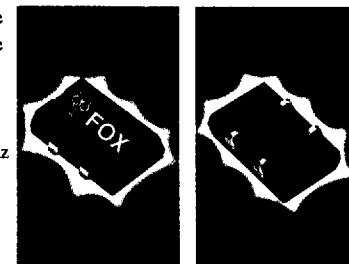


Pin
Connections
#1 E/D #3 Output
#2 GND #4 +5 VDC



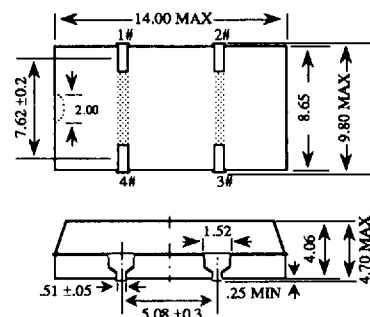
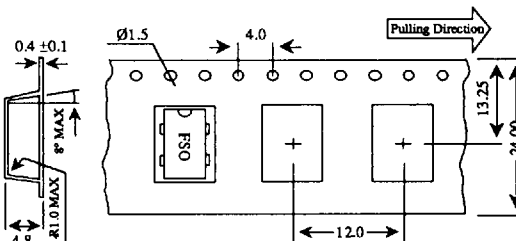
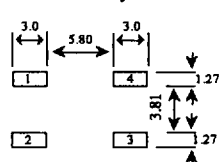
The FSO Series Oscillator is compatible with both TTL and HCMOS technologies. Features include extended temperature range, 5000 G shock resistance, and tri-state enable/disable option. Enable option FSO-2, FSO-2T, and FSO-2H. (See pg. 56 - 57 for further information)

	FSO / FSO-2	FSO-T/FSO-2T	FSO-H	FSO-2H
Frequency Range	1.025 - 26 MHz	26 - 36 MHz	30 - 55 MHz	26 - 66.667 MHz
Frequency Stability				
-10°C to +70°C	±100PPM	±100PPM	±100PPM	±100PPM
-40°C to +85°C	±200PPM	±200PPM		
Input Current				
No Load	23 mA MAX	35 mA MAX	35 mA MAX	35 mA MAX
Disabled (-2, -2T, -2H only)	12 mA MAX	20 mA MAX	-----	20 mA MAX
Symmetry	40/60% MAX	40/60% MAX	40/60% MAX	40/60% MAX
Rise/Fall Time	8 ns MAX	10 ns MAX	7 ns MAX	7 ns MAX
Output Load	10 TTL or 50 pF	10 TTL or 30 pF	10 LS-TTL or 50 pF	50 pF



Pin
Connections
#1 E/D or N.C. #3 Output
#2 GND #4 +5 VDC

Recommended
Solder Pad Layout



All dimensions in mm